

Patent Application
Docket No.27943-00252USPT
P09890

EXHIBIT C
CLEAN SET OF PENDING CLAIMS

1. (Thrice Amended) In a wireless telecommunications system having a Base Transceiver Station (BTS) and a mobile terminal equipped with an integrated Global Positioning System (GPS) equipped receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a method for determining the approximate position of the GPS-equipped mobile terminal, said method comprising the steps of:

demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

recovering respective navigational data signals from each of said demodulated GPS satellite signals at the reference GPS receiver;

originating a request for approximate navigational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

transmitting the navigational data signals to the GPS-equipped mobile terminal from the reference GPS receiver responsive to said request for approximate navigational information; and

determining, from said transmitted navigational data signals, the approximate location of the GPS-equipped mobile terminal;

wherein the GPS satellite signals comprise one of:

Standard Positioning Service (SPS) signals received on an L1 frequency, said L1

Patent Application
Docket No.27943-00252USPT
P09890

frequency being centered at about 1575.42 MHz; or

Precise Positioning Service (PPS) signals received on an L2 frequency, said L2 frequency being centered at about 1227.60 MHz.

4. The method according to Claim 1, wherein said approximate navigational information comprises the identities of a plurality of GPS satellites within ranging distance, the orbital parameters associated with said plurality of GPS satellites, clock correction information and differential correction information associated with said plurality of GPS satellites.

5. The method according to Claim 1, wherein said step of originating said request for approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station is responsive to activation of the mobile terminal.

6. The method according to Claim 1, wherein said step of originating said request for approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station is responsive to placing a call from the GPS-equipped mobile terminal to one of a set of designated numbers.

7. The method according to Claim 6, wherein said one designated number is associated with an emergency service.

Patent Application
Docket No.27943-00252USPT
P09890

8. In a wireless telecommunications system having a Base Transceiver Station (BTS) and a mobile terminal equipped with an integrated Global Positioning System (GPS) equipped receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a method for determining the approximate position of the GPS-equipped mobile terminal, said method comprising the steps of:

demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

recovering respective navigational data signals from each of said demodulated GPS signals;

determining whether the GPS signal strength at the GPS-equipped mobile terminal is adequate to permit initialization of the reference GPS receiver associated with the GPS-equipped mobile terminal within a desired response time;

if not, originating a request for approximate navigational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

transmitting recovered navigational data signals to the GPS-equipped mobile terminal responsive to said request for approximate navigational information; and

determining, from said transmitted navigational data signals, the approximate location of the GPS-equipped mobile terminal.

Patent Application
Docket No.27943-00252USPT
P09890

9. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station (BTS) and a mobile terminal equipped with an integrated Global Positioning System (GPS) equipped receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a method for determining the approximate position of the GPS-equipped mobile terminal, said method comprising the steps of:

demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

recovering respective navigational data signals from each of said demodulated GPS satellite signals at the reference GPS receiver;

determining, from said transmitted navigational data signals, an estimated location of the reference GPS receiver;

originating a request for approximate navigational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

transmitting the estimated location of the reference GPS receiver to the GPS-equipped mobile terminal responsive to said request for approximate navigational information; and

determining, from the estimated location of the reference GPS receiver, the approximate location of the GPS-equipped mobile terminal;

wherein said step of transmitting is performed via one of:

a Cell Broadcast (CB) Short Message Service (SMS) message of the wireless

Patent Application
Docket No. 27943-00252USPT
P09890

telecommunications system; or

a Broadcast Control Channel (BCCH) of the wireless telecommunications system.

11. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station (BTS) and a mobile terminal equipped with an integrated Global Positioning System (GPS) equipped receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a method for determining the approximate position of the GPS-equipped mobile terminal, said method comprising the steps of:

demodulating signals received from a plurality of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

recovering respective navigational data signals from each of said demodulated GPS satellite signals at the reference GPS receiver;

determining, from said transmitted navigational data signals, an estimated location of the reference GPS receiver;

originating a request for approximate navigational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

transmitting the estimated location of the reference GPS receiver to the GPS-equipped mobile terminal responsive to said request for approximate navigational information;

determining, from the estimated location of the reference GPS receiver, the approximate

Patent Application
Docket No.27943-00252USPT
P09890

location of the GPS-equipped mobile terminal;

periodically transmitting a Timing Advance parameter from the Base

Transceiver Station to the GPS-equipped mobile terminal to dynamically compensate for varying distances between the GPS-equipped mobile terminal and the Base Transceiver Station; and

refining said approximate location of the GPS-equipped mobile terminal using said Timing Advance parameter.

13. (Thrice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a method for determining the approximate position of the GPS-equipped mobile terminal, said method comprising the steps of:

demodulating signals received from a plurality of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

computing an estimated location of said reference GPS receiver using said demodulated signals from said GPS satellites;

originating a request for approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

transmitting said estimated location of said reference GPS receiver from the Base

Patent Application
Docket No.27943-00252USPT
P09890

Transceiver Station to the GPS-equipped mobile terminal responsive to said request for approximate locational information; and

determining, from said transmitted location of said reference GPS receiver, the approximate location of the GPS-equipped mobile terminal;

wherein start up time of the reference GPS receiver is accelerated responsive to said determination of the estimated location of the reference GPS receiver;

wherein the GPS satellite signals comprise one of:

Standard Positioning Service (SPS) signals received on an L1 frequency, said L1 frequency being centered at about 1575.42 MHz; or

Precise Positioning Service (PPS) signals received on an L2 frequency, said L2 frequency being centered at about 1227.60 MHz.

14. The method according to Claim 13, wherein said step of computing the estimated location of said reference GPS receiver further comprises the steps of:

recovering respective navigational data signals from each of said demodulated GPS signals from said GPS satellites; and

computing, from the respective navigational data signals, the location of said reference GPS receiver.

Patent Application
Docket No.27943-00252USPT
P09890

15. The method according to Claim 14, wherein said respective navigational data signals comprise orbital parameters associated with a plurality of GPS satellites, clock correction information and differential correction information.

16. The method according to Claim 13, wherein said method further comprises, after said step of computing and before said step of originating, the step of:

storing said estimated location of said reference GPS receiver in said wireless telecommunications system.

17. The method according to Claim 13, wherein said step of originating said request for approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station is responsive to activation of the GPS-equipped mobile terminal.

18. The method according to Claim 13, wherein said step of originating said request for approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station is responsive to placing a call from the GPS-equipped mobile terminal to one of a set of designated numbers.

19. The method according to Claim 18, wherein said one designated number is associated with an emergency service.

Patent Application
Docket No. 27943-00252USPT
P09890

20. (Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a method for determining the approximate position of the GPS-equipped mobile terminal, said method comprising the steps of:

demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

computing an estimated location of said reference GPS receiver using said demodulated signals from said GPS satellites;

determining whether a GPS signal strength at the GPS-equipped mobile terminal is adequate to permit initialization of the reference GPS receiver associated with the GPS-equipped mobile terminal within a desired response time;

if not, originating a request for approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

transmitting said estimated location of said reference GPS receiver from the Base Transceiver Station to the GPS-equipped mobile terminal responsive to said request for approximate locational information; and

determining, from said transmitted location of said reference GPS receiver, the approximate location of the GPS-equipped mobile terminal.

Patent Application
Docket No.27943-00252USPT
P09890

21. (Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a method for determining the approximate position of the GPS-equipped mobile terminal, said method comprising the steps of:

demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

computing an estimated location of said reference GPS receiver using said demodulated signals from said GPS satellites;

originating a request for approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

transmitting said estimated location of said reference GPS receiver from the Base Transceiver Station to the GPS-equipped mobile terminal responsive to said request for approximate locational information; and

determining, from said transmitted location of said reference GPS receiver, the approximate location of the GPS-equipped mobile terminal;

wherein said step of transmitting is performed via one of:

a Cell Broadcast (CB) Short Message Service (SMS) message over the wireless telecommunications system; or

Patent Application
Docket No.27943-00252USPT
P09890

a Broadcast Control Channel (BCCH) of the wireless telecommunications system.

23. The method according to Claim 13, wherein the estimated location of said reference GPS receiver is used as the approximate location of the GPS-equipped mobile terminal.

24. (Thrice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a system for determining the approximate position of the GPS-equipped mobile terminal, said system comprising:
demodulation means for demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

signal recovery means for recovering navigational data signals from each of said demodulated GPS satellite signals at the reference GPS receiver,

determination means for determining, from said transmitted navigational data signals, an estimated location of the reference GPS receiver;

requesting means for requesting approximate navigational information for the GPS-equipped mobile terminal from the Base Transceiver Station;

transmission means for transmitting the estimated location of the reference GPS receiver

Patent Application
Docket No.27943-00252USPT
P09890

to the GPS-equipped mobile terminal responsive to said request for approximate navigational information;
and

determination means for determining, from the estimated location of the reference GPS receiver, the approximate location of the GPS-equipped mobile terminal;

wherein the GPS satellite signals comprise one of:

Standard Positioning Service (SPS) signals received on an L1 frequency, said L1 frequency being centered at about 1575.42 MHz; or

Precise Positioning Service (PPS) signals received on an L2 frequency, said L2 frequency being centered at about 1227.60 MHz.

27. The system according to Claim 24, wherein said approximate navigational information comprises the identities of a plurality of GPS satellites within ranging distance, the orbital parameters associated with said plurality of GPS satellites, clock correction information and differential correction information associated with said plurality of GPS satellites.

28. The system according to Claim 24, wherein said requesting means is responsive to activation of the mobile terminal.

29. The system according to Claim 24, wherein said requesting means is responsive to placing a call from the GPS-equipped mobile terminal to one of a set of designated numbers.

Patent Application
Docket No.27943-00252USPT
P09890

30. The system according to Claim 24, wherein said one designated number is associated with an emergency service.

31. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a system for determining the approximate position of the GPS-equipped mobile terminal, said system comprising:

demodulation means for demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

signal recovery means for recovering navigational data signals from each of said demodulated GPS satellite signals at the reference GPS receiver;

determination means for determining, from said transmitted navigational data signals, an estimated location of the reference GPS receiver;

determining means for determining whether a GPS signal strength at the GPS-equipped mobile terminal is adequate to permit initialization of the reference GPS receiver associated with the GPS-equipped mobile terminal within a desired response time;

requesting means for requesting approximate navigational information for the GPS-equipped mobile terminal from the Base Transceiver Station, if said GPS signal strength is not adequate

Patent Application
Docket No.27943-00252USPT
P09890

to permit said initialization;

transmission means for transmitting the estimated location of the reference GPS receiver to the GPS-equipped mobile terminal responsive to said request for approximate navigational information; and

determination means for determining, from the estimated location of the reference GPS receiver, the approximate location of the GPS-equipped mobile terminal.

32. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a system for determining the approximate position of the GPS-equipped mobile terminal, said system comprising:

demodulation means for demodulating signals received from a plurality of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

signal recovery means for recovering navigational data signals from each of said demodulated GPS satellite signals at the reference GPS receiver;

determination means for determining, from said transmitted navigational data signals, an estimated location of the reference GPS receiver;

requesting means for requesting approximate navigational information for the GPS-

Patent Application
Docket No.27943-00252USPT
P09890

equipped mobile terminal from the Base Transceiver Station;

transmission means for transmitting the estimated location of the reference GPS receiver to the GPS-equipped mobile terminal responsive to said request for approximate navigational information; and

determination means for determining, from the estimated location of the reference GPS receiver, the approximate location of the GPS-equipped mobile terminal;

wherein said transmission means comprises one of:

a Cell Broadcast (CB) Short Message Service (SMS) message over the wireless telecommunications system; or

a Broadcast Control Channel (BCCH) of the wireless telecommunications system.

34. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a system for determining the approximate position of the GPS-equipped mobile terminal, said system comprising:

demodulation means for demodulating signals received from a multiplicity of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

signal recovery means for recovering navigational data signals from each of said

Patent Application
Docket No.27943-00252USPT
P09890

demodulated GPS satellite signals at the reference GPS receiver;

determination means for determining, from said transmitted navigational data signals, an estimated location of the reference GPS receiver;

requesting means for requesting approximate navigational information for the GPS-equipped mobile terminal from the Base Transceiver Station;

transmission means for transmitting the estimated location of the reference GPS receiver to the GPS-equipped mobile terminal responsive to said request for approximate navigational information;

determination means for determining, from the estimated location of the reference GPS receiver, the approximate location of the GPS-equipped mobile terminal;

means for periodically transmitting a Timing Advance parameter from the Base Transceiver Station to the GPS-equipped mobile terminal to dynamically compensate for varying distances between the GPS-equipped mobile terminal and the Base Transceiver Station; and

means for refining said approximate location of the GPS-equipped mobile terminal using said Timing Advance parameter.

36. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a system for determining the approximate position of the GPS-equipped mobile terminal, said system comprising:

a demodulator for demodulating signals received from a multiplicity of GPS satellites at a

Patent Application
Docket No.27943-00252USPT
P09890

reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;

computing means for determining an estimated location of said reference GPS receiver using said demodulated signals from said GPS satellites;

requesting means for requesting approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station;

a transmitter for transmitting the location of said reference GPS receiver from the Base Transceiver Station to the GPS-equipped mobile terminal responsive to said request for said approximate locational information; and

determination means for determining the approximate location of the GPS-equipped mobile terminal using said transmitted location of said reference GPS receiver;

wherein the GPS satellite signals comprise one of:

Standard Positioning Service (SPS) signals received on an L1 frequency, said L1 frequency being centered at about 1575.42 MHz; or

Precise Positioning Service (PPS) signals received on an L2 frequency, said L2 frequency being centered at about 1227.60 MHz.

37. The system according to Claim 36, wherein said computing means further comprises:

decoder means for recovering respective navigational data signals from each of said demodulated signals from said GPS satellites; and

Patent Application
Docket No.27943-00252USPT
P09890

computing means for computing the location of said reference GPS receiver from said respective navigational data signals.

38. The system according to Claim 37, wherein said respective navigational data signals comprise the orbital parameters associated with a plurality of GPS satellites, clock correction information and differential correction information.

39. The system according to Claim 36, wherein said computing means further comprises: storage means for storing said estimated location of said reference GPS receiver in said wireless telecommunications system.

40. The system according to Claim 36, wherein said requesting means is responsive to activation of the mobile terminal.

41. The system according to Claim 36, wherein said requesting means is responsive to placing a call from the GPS-equipped mobile terminal to one of a set of designated numbers.

42. The system according to Claim 41, wherein said one designated number is associated with an emergency service.

Patent Application
Docket No.27943-00252USPT
P09890

43. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a system for determining the approximate position of the GPS-equipped mobile terminal, said system comprising:

- a demodulator for demodulating signals received from a plurality of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;
- computing means for determining an estimated location of said reference GPS receiver using said demodulated signals from said GPS satellites;
- determining means for determining whether a GPS signal strength at the GPS-equipped mobile terminal is adequate to permit initialization of the reference GPS receiver associated with the GPS-equipped mobile terminal within a desired response time;
- requesting means for requesting approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station, if said GPS signal strength is not adequate to permit said initialization;
- a transmitter for transmitting the estimated location of said reference GPS receiver from the Base Transceiver Station to the GPS-equipped mobile terminal responsive to said request for said approximate locational information; and
- determination means for determining the approximate location of the GPS-equipped mobile terminal using said transmitted location of said reference GPS receiver.

Patent Application
Docket No. 27943-00252USPT
P09890

44. (Twice Amended) In a wireless telecommunications system having a Base Transceiver Station and a mobile terminal equipped with an integrated Global Positioning System (GPS) receiver, the Base Transceiver Station having operational control of the GPS-equipped mobile terminal, a system for determining the approximate position of the GPS-equipped mobile terminal, said system comprising:
- a demodulator for demodulating signals received from a plurality of GPS satellites at a reference GPS receiver, said reference GPS receiver being connected to the wireless telecommunications system and having a determinate physical location relative to the Base Transceiver Station;
 - computing means for determining an estimated location of said reference GPS receiver using said demodulated signals from said GPS satellites;
 - requesting means for requesting approximate locational information from the GPS-equipped mobile terminal to the Base Transceiver Station;
 - a transmitter for transmitting the estimated location of said reference GPS receiver from the Base Transceiver Station to the GPS-equipped mobile terminal responsive to said request for said approximate locational information; and
 - determination means for determining the approximate location of the GPS-equipped mobile terminal using said transmitted location of said reference GPS receiver;
- wherein said transmitter transmits over one of:
- a Cell Broadcast (CB) Short Message Service (SMS) message over the wireless telecommunications system; or
 - a Broadcast Control Channel (BCCH) of the wireless telecommunications system.